

**NORTHERN ILLINOIS UNIVERSITY**

The Impact of Cancer Resource Center Servicescapes on Cancer  
Patient's Health

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**By**

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# **HONORS THESIS ABSTRACT THESIS SUBMISSION FORM**

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**ABSTRACT (100-200 WORDS):**

This study explores how cancer patients are most affected by four different types of fatigue. I discuss the methodology of how the surveys were administered, and also my experiences dealing with LivingWell Cancer Resource Center. I also mention the multiple groups that are present at LivingWell, and how these groups can positively or negatively effect fatigue restoration. I discuss the major impacts of fatigue and the recorded fatigue levels of members both before, and after they attend a course. It then goes into detail on how cancer resource center can provide fatigue restoration by the physical design of the building. It explains how sensing a restorative servicescape results in partial mediation, and a strong predictor of fatigue level alleviation in cancer patients.

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Patient's Health

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MKTG 499H – Independent Study  
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## **ABSTRACT**

This study explores how cancer patients are most affected by four different types of fatigue. I discuss the methodology of how the surveys were administered, and also my experiences dealing with LivingWell Cancer Resource Center. I also mention the multiple groups that are present at LivingWell, and how these groups can positively or negatively effect fatigue restoration. I discuss the major impacts of fatigue and the recorded fatigue levels of members both before, and after they attend a course. It then goes into detail on how cancer resource center can provide fatigue restoration by the physical design of the building. It explains how sensing a restorative servicescape results in partial mediation, and a strong predictor of fatigue level alleviation in cancer patients.

## **Background Information**

I did my Capstone project with Dr. Mark Rosenbaum from the NIU Marketing Department. I chose to go with him because of my experience in his Marketing Research course. This is the field I want to work in so the added experience was a great way to boost my skills and give me more to talk about during my interviews.

Dr. Rosenbaum focus in service marketing and does the majority of his research in this sort of field. LivingWell Cancer Treatment Center has sponsored an ELC team that Dr. Rosenbaum was the head of. Because of this, he has a close working connection with LivingWell, and already had some data from them based on the ELC project. My project was a combination of leads based on information they received from the ELC, as well as Dr. Rosenbaum's interest and advancements in the services marketing field.

LivingWell Cancer Center is located in Geneva, Illinois. It is a resource center for cancer patients as well as caregivers and family members who are affected by someone with cancer. It is a place where these people can get together and talk freely about their cancer, their issues, and their needs. LivingWell also hosts classes for the members to participate in. Its classes cover a variety of topics from yoga and painting to laughter and Sudoku. This leads to a comfortable environment that allows the members a chance to free their mind and discuss anything that they feel like talking about. Each of the classes has a class leader who leads discussions as

well as teaches the courses. What LivingWell provides creates the perfect scenario for my research project.

For my Capstone project, we were looking at a few things about the service industry. These topics include do cancer-center members (including cancer patients and their caregivers) perceive the center's servicescape (i.e., built environment) as being restorative?

Does sensing a restorative servicescape positively influence a cancer member's health? And to what extent does participating in a cancer center's activities and educational courses influence a member's fatigue level? Does fatigue reduction mediate the relationship between a member sensing a restorative servicescape and his or her health benefits? That is, does fatigue reduction fully explain or partially explain the relationship between a member sensing restoration and his or her health?

Answering these fundamental questions can really give insight not only into cancer patient's health, but also on what the care centers can do to better the experience of the participants. It can also lead to better knowledge about the design and environmental aspects that alleviate fatigue levels in those who experience it.

In the services marketing domain, researchers show that some consumers actively seek out and patronize commercial service establishments, such as local diners, fitness clubs, and video arcades to fulfill not only their consumption needs, but also

their needs for human companionship and emotional support. Service researchers and sociologists refer to commercial establishments that host the regular, voluntary, informal and happily anticipated gatherings of individuals beyond the realms of home and work as "third places".

By drawing upon Attention Restoration Theory (ART), service researchers have shown that some commercial third places contain therapeutic, restorative stimuli, which positively influence their customers' quality of life by mimicking natural stimuli. Kaplan (1995) argues that natural stimuli, such as parks, beaches, and recreational areas, positively influence human health by helping people remedy negative symptoms associated with mental fatigue, including stress and depression. Rosenbaum *et al.* (2009) shows that commercial third places also possess stimuli in their physical environments, referred to as *servicescapes* that have restorative potential, which benefits some patrons' health. However, it remains unclear whether not-for-profit health institutions, such as cancer resource centers, can also fashion restorative servicescapes that help their patrons alleviate symptoms associated with mental and even, bodily fatigue.

Cancer-related fatigue is one of the most common side effects of cancer and its treatment process. It is not predictable by tumor type, treatment, or stage of illness. Usually, it comes on suddenly, does not result from activity or exertion, and is not relieved by rest or sleep. It is often described as "paralyzing." These feelings might continue even after treatment is complete (Kaplan 1995).

Perhaps, a cancer-resource center has the potential to act as a third-place. If so, then by participating in a center's activities, members may be able to remedy negative symptoms associated with cancer-related fatigue.

### **The Research Methodology**

To determine the answers to the problems above, a survey was developed and administered to the class participants at LivingWell. All of the scales employed in the study are derived from scales that have been previously employed in the environmental psychology and health-related fields.

Data was obtained from a convenient sample of 70 members of LivingWell (LW) Cancer Resource Center. The respondents were asked to participate in the survey after they completed their participation in a LW class or activity. The questionnaires were anonymous and the respondents were not asked questions about the class per se. I was called into the class upon its conclusion to administer the surveys to the participants. Each participant was only allowed to fill out one survey and the surveys were administered across multiple LW classes.

### **Restorative Servicescape**

To assess whether respondents viewed LW as restorative, we employed Han's (2007) 12-item Perceived Restoration Scale. This model asked questions that looked to determine how the respondents felt about LW. It allowed us to see what



percentage of participants viewed it as restorative, and how many did not. It also brings up which features or characteristics the respondents felt closest to.

This information is important because when trying to give LW a recommendation, we can see what the workers can do to increase the restoring abilities of LW. It also allows us to assign a scale to each question. Since each question was ranked from 1, which is the least, to 5, which is the most, we were able to see where each respondent would need to average on the scale to be included in either of the groups. Also, when looking at a combined total, it allowed us to view each restorative question in comparison to the others to find out exactly which characteristics have the biggest impact on patients and caregivers. We also needed to determine the respondent's levels of fatigue.

## **Fatigue**

A LW Member's fatigue level (cognitive (mental), physical fatigue, energy, and productivity) was evaluated with the 11-item Iowa Fatigue Scale. Again, we used this scale because it is not only a known fatigue scale, but it is widely used and accepted to accurately gauge fatigue levels in the respondents. This survey, though only administered once to each respondent, asked each question that had to do with fatigue twice. The first was to view the respondent's levels of fatigue before they participated in the class, and then again to check the current fatigue levels, immediately after the class. This gave us the ability to look at the two numbers comparatively and see changes in behavior or emotion

## **How the Surverys were Administered**

I have never experienced this sort of environment outside of a hospital. To be honest, I didn't really know what to expect. Part of me expected to see a hospital like setting with people in rooms. I then figured I would be in a big lunchroom type setting as the patients came out from their group courses and were headed back to their rooms. As a pretty big germ-a-phoebe, I was expecting to feel very uncomfortable and out of my comfort zone. I was imagining canes, IV carts, the whole hospital "9-yards". I can't believe how wrong I was about the experience.

Once I arrived, I quickly realized that the members did not actually live there. It is the type of place that you go to for the class, and then return home. Because of this, it was setup like you would expect any small office building. It had short hallways, was pretty open, and had quite a few offices and a couple of larger rooms to allow for the classes to take place. It also had a big kitchen, and a nice couch in the waiting area.

Since the surveys were distributed at LivingWell Cancer Center, we had to gain not only its permission, but also the permission of the class administrator. Once they approved our surveying, we were given course lists and the times that each class was held. From this, we would choose certain classes and times that we were available to administer surveys. We ended up going to seven courses and surveying seventy people.

When I arrived for each course, I would sit in the waiting room as the actual course was taking place. A lot of the discussion dealt with dealing with cancer and the emotional stress that went along with it. Either this or some hobby like yoga and painting that I wasn't too good at anyway. Based on the painting course, they are not your general 100 level courses. With the creativity and skill that they possessed, it seemed more like an MBA course. Either way, they advised me not to go into the classes early as it might make some of the participants feel uncomfortable.

Once the class was over, the leader would call me in. At the beginning of each course, the administrator would inform the participants that I would be there to survey; this way, they weren't trying to rush out of the door before I could get in. Upon entering the class, I would introduce myself and tell them a little bit about me. The information was based around where I am from, the school I attend, and what my major was. I would then explain to them what it was we were trying to accomplish with the survey, and ask them to participate. But, of course, everyone needs incentives.

From the first class I surveyed, I quickly realized that people were not thrilled about staying an extra five minutes to fill out my survey. Luckily, my professor assumed this would be the case and bought iPod Shuffles to raffle off once all the surveys were collected. The difference was night and day. It seemed everyone was ready to leave and were quickly saying they weren't interested in taking the survey. Once I mentioned I had an iPod to raffle off, they quickly changed their minds and were

happy to fill out the survey. The amount of members was not that large in each class. On average, each class held about 4-9 people. Because of this, they are a close group and extremely likely to at least know the person who won the iPad. We even had once class with only three participants.

The surveys were not all fun and games though. I ran into a few more obstacles while administering them. On the first day I went alone, I found that some people were almost offended by taking the survey. It was the brain cancer support group in particular where I faced a bit of a backlash. It was nothing serious, but a few members made sure to express how poor their memory was since the surgery and that they were almost embarrassed to say they didn't remember how they felt when coming into the class. They were also ashamed at how long it physically took them to finish all of the surveys. This made me feel like I really didn't understand what they were going through; in my opinion, that is about right. This sparked a whole conversation about the iPod and how one of the members was in a coma for a couple of years. He was talking about how everyone was using CD players when he went under, and then suddenly he had to learn all the new technology, including the iPod, as soon as he came to. I remember specifically him saying that it took five full days worth of updating to get his computer to stop notifying him about the updates that it needed. Though this wasn't common for the classes to do, when it did happen it hit me emotionally.

On another instance, I walked in and heard a lot of young laughter coming from the kitchen. About five minutes later, parents started to show up. When the doors opened, six or seven kids came out to greet their parents. I was almost overcome with emotion as all the kids, no older than ten, were basically hairless or wearing an obvious wig. That was probably one of the hardest things I had to witness in a long time. Luckily, I had the honest mentality that the research we were doing would create a positive experience and do some good for the center.

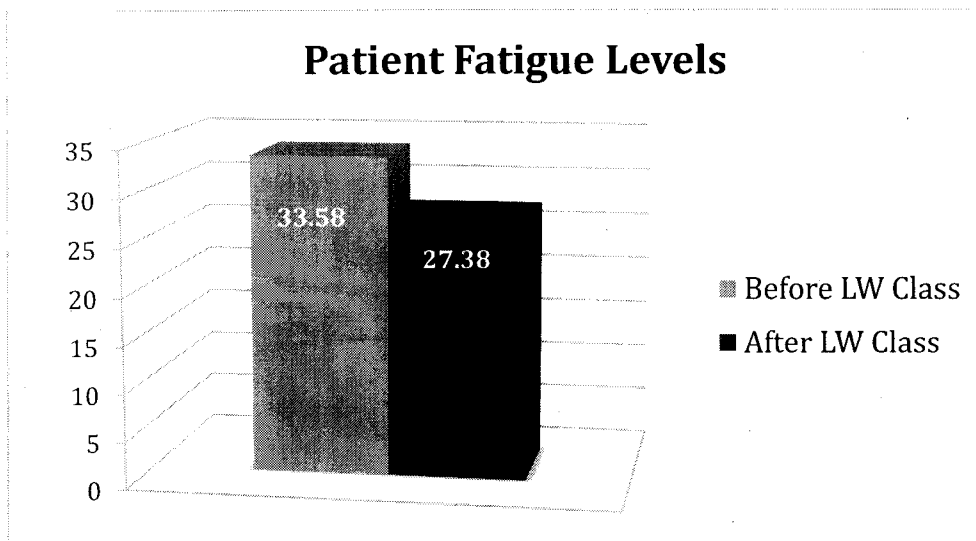
Though some negative experiences did exist, overall it was a good experience and the participants viewed it as a good experience. A lot of them remarked how "it's about time marketers stop selling us stuff we don't need and bringing true benefits to the world". Of course, these sorts of comments always made me feel good about myself and the work I was doing.

Once we were finished with the surveying, we totaled seventy completed surveys. This was out of a possible 180 members, so overall it was a good number that we are happy about, especially considering that not every member participates in classes on a regular basis.

## **How the Data was Interpreted and the Results**

Since the survey was administered to solve multiple problems, I will break them each down independently. We looked at fatigue in cancer patients and if it is alleviated from servicescapes, the extent to members viewing LW as a restorative servicescape, and the affect of servicescapes on cancer patient's health.

First, we will look at the impact of LW classes on a member's life. Given the IOWA Fatigue score needs a minimum score of 30 before a respondent is considered fatigued, we can first develop a sense of fatigue in the community. This scale was also used as a comparative measure, meaning it asked both before and after ranking questions. For this information, we ran a paired sample t-test to compare the fatigue level's means in both situations. We found that on average, members felt fatigued before the classes with a mean score of 33.58 ( $m=33.58$ ). After the class, we found a significant drop in fatigue levels. Fatigue was actually removed from the members at the conclusion of the class, and resulted in a 27.38 mean score for fatigue ( $m=27.38$ ).



So, by just participating in a LW class, cancer patients and caregivers can remedy symptoms associated with four types of fatigue: cognitive, bodily fatigue, energy and productivity. This seems like great news all on its own, but of course more than one piece of data is needed to tell a complete story. So from there, we looked at the different groups.

The different groups within LW helped us determine if we could break the members into different groups, and if so, what are the different attributes and if we can predict behavior based on group membership. To answer this question, we ran a cluster analysis. We based this on the answers we received from asking whether or not the members viewed LW as a restorative servicescape. The clusters broke the members into two groups. The two groups were those who views LW as restorative, and those who do not. Out of the members who qualified, 41 members were found to have found LW as a restorative servicescape, while 29 members did not. The

breakdown of each group and what their specific attributes are can be seen in the chart below.

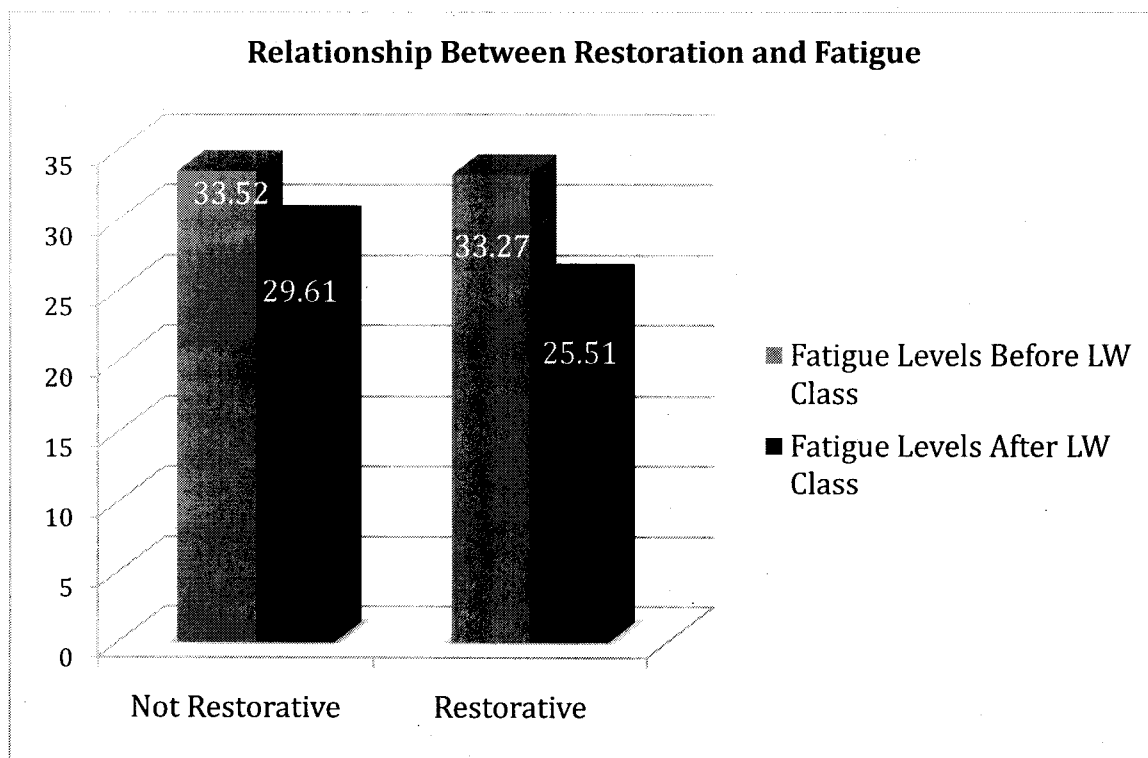
59.4% (41)	40.6% (29)
I Can Do Things I Like (4.85)	I Can Do Things I Like (3.61)
LW Suits Personality (4.78)	LW Suits Personality (3.61)
Explore and Discover (4.78)	Explore and Discover (3.71)
Spend More Time (4.68)	Spend More Time (3.57)
Sense of Belong (4.80)	Sense of Belong (3.79)
Break from Day-to-Day (4.80)	Break from Day-to-Day (3.54)
Know the Place Better (4.63)	Know the Place Better (3.57)
Escape Experience (4.56)	Escape Experience (3.07)
Sense of Harmony (4.8)	Sense of Harmony (3.89)
Attention to Many Things (4.68)	Attention to Many Things (3.82)
Activities are Interesting (4.76)	Activities are Interesting (4.00)
Enjoy Myself at LW (4.76)	Enjoy Myself at LW (5.15)

This piece of data alone brings up some interesting questions. For one, what exactly does it take to turn LW into a third-place, and how can we get the other 29 members to view it as such? Also, what benefits are gained from viewing the place as restorative, if any? These questions lead us to our next set of tests.

We were curious to see what happened if we checked the fatigue levels of these two groups before and after, and then compared them to each other. What we found was even more exciting. The members that viewed LW as a restorative servicescape,



came in with a fatigue level of 33.52 ( $m=33.52$ ), compared to 33.27 of those who do not see LW in that light. These numbers are basically the same and did not show a significant difference between them. Either way, they are above 30 and therefore fatigued. After the classes is when the magic happened. Those who viewed LW as restorative fell to 25.51 as the average fatigue level ( $m=25.51$ ). Those who did not view LW as restorative only dropped to 29.61 ( $m=29.61$ ), or if we round it, they are still suffering from fatigue symptoms.



This chart shows the impact that restorative servicescapes can have on health. In this particular case, it shows the effect that restorative features it can have on cancer patients. So from here, we determined that LW can provide the best services to its members by having them view LW as a restorative servicescape. But, the

previous chart shows that not every member wants this sort of connection with LW. So, overall, LW will need to determine which members are most capable of viewing LW as a servicescape, and how the establishment can cater to the individual needs of each member. Because without it, the fatigue levels are not being directly effected by the members participation in the courses. Finally, we looked to determine if this information was predictable.

LW member involvement (i.e., loyalty, dedication to participation) and emotional well-being (i.e., mood, depression, happiness) is predicted primarily by a member sensing a restorative servicescape and, to a lesser extent, the ability to remedy fatigue at LW. However, both restorative status and fatigue reduction are significant predictors at  $p < .05$ . Because of this, treatment centers can now realize that a patients reduction of fatigue is not due solely to their sense of community and active involvement. When we add a restorative servicescape to the mix, the connection between the prior two factors drop a significant amount. Though we were hoping to completely explain what is actually causing the decrease in fatigue, what we ended up with was a partial mediation, which means there is still another factor out there that is yet to be discovered. Unfortunately, I am graduating will not have the pleasure of working towards finding it. But this doesn't mean that LW can't take some very important points from our research. Those are in the conclusion.

## **Conclusions**

- All cancer patients can remedy negative symptoms associated from fatigue by participating in a LW class.
- LW members who sense the center as a “home-away-from-home” or an “escape” experience more fatigue reduction than those who do not do so.
- Restoration and fatigue reduction both predict a member’s involvement in LW and his/her emotional health.
- LW should try to encourage every member to perceive the center as restorative. LW could interview each member to discover how it can play a significant role in each member’s life. However, not every member is going to want to view LW as a “third-place.”

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